

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

1. (Amended) A method for multicasting data through a network in real-time, the method comprising the computer-implemented acts of:

multicasting said data through said network as a rate-specific data stream using a bi-directional delivery protocol (BDP);

determining the available bandwidth of said network; and
dynamically adjusting the rate-specific data stream based on the available bandwidth determined for said network,

~~passing corrective data through the network via the bi-directional delivery protocol; and~~
~~performing error correction to reduce packet loss using checksums when multicasting said data;~~

wherein, said determining of the available bandwidth is based on a first client connected to said network,

wherein, the rate-specific data stream corresponds to the first client having available network bandwidth to receive the rate-specific data stream,

wherein, said dynamic adjustment of the rate-specific data stream occurs automatically based on the available bandwidth,

wherein, said data comprises video data that is multicasted through the network in uncompressed form, and

wherein, said ~~using said~~ bi-directional delivery protocol (BDP) comprises sending a binomial TCP forward packet and a simple UDP backwards packet.

2. (Amended) The method of claim 1, further comprising:
multicasting at least a portion of the data to the first client ~~destination machine;~~
sending a signal to a checksum point to request a data packet of the data that is missing from the at least a portion of the data received at the first client ~~destination machine;~~

passing corrective data through the network via the bi-directional delivery protocol; and performing error correction to reduce packet loss using checksums when multicasting said data.

3. (Previously Presented) The method of claim 1, wherein, the data comprises live updates to a sporting event.

4. (Amended) The method of claim 2, further comprising:
receiving a checksum result at the first client destination machine; and
determining a list of data packets that are missing from the at least a portion of the data received at the first client destination machine using the checksum result.

5. (Amended) The method of claim 2, further comprising:
~~further~~ multicasting the data to a second client connected to said network destination machine.

6. (Amended) The method of claim 5, further comprising
multicasting the data through the network from the second client destination machine;
and
receiving the data at the first client destination machine.

7. (Amended) The method of claim 5, further comprising:
using a multicast global listener (multicast GL) between the first and second clients destination machine to correct for packet loss;
wherein, the first client destination machine sends the data to the second client destination machine and the second client destination machine sends the data to the first client destination machine.

8. (Previously Presented) The method of claim 7, wherein, the multicast GL is implemented in, one or more of, TAPI 3 and IGMPv3.

9. (Amended) The method of claim 2 ~~5~~, further comprising:
performing a multi-client web browsing session;
wherein, a browser at the first client ~~destination-machine~~ is locked to a browser at the second client ~~destination-machine~~ and displays the same website as that displayed at the second client ~~destination-machine~~.

10. (Previously Presented) The method of claim 1, wherein, the data includes audio data.

11. (Previously Presented) The method of claim 10, wherein, the audio data is uncompressed.

12. (Cancelled)

13. (Amended) The method of claim 1, wherein~~[[:]]~~, the network is a local area network or wide area network.

14. (Amended) The method of claim 1, wherein~~[[:]]~~, the network is the internet or an intranet.

15. (Amended) The method of claim 1, wherein~~[[:]]~~, the network is a wireless network.

16. (Amended) The method of claim 2, wherein~~[[:]]~~, the first client ~~destination-machine~~ is a wireless phone.

17. - 81. (Cancelled)

82. (Amended) A machine-readable storage medium having stored therein instructions ~~having embodied therein instructions~~, which, when executed by a processor, cause the processor to perform a method for multicasting video and audio data through a network of a set of destination machines, the method comprising:

multicasting said video and audio data as a rate-specific data stream sent through said network using a bi-directional delivery protocol (BDP), wherein the rate-specific data stream corresponds to a first client having available network bandwidth to receive the rate-specific data stream, and wherein the first client is connected to said network;

determining the available bandwidth of said network based on the first client; and
dynamically adjusting the rate-specific data stream based on the available bandwidth of said network;

wherein, said video and audio data is multicasted through the network in uncompressed form; and

wherein, said using said bi-directional delivery protocol (BDP) comprises sending a binomial TCP forward packet and a simple UDP backwards packet[[]].

~~multicasting at least a portion of the video and audio data to first destination machine;~~
~~sending a signal to a checksum point to request a data packet of the video and audio data that is missing from the at least a portion of the video and audio data received at the first destination machine;~~

~~receiving a checksum result at the first; and~~
~~determining a list of data packets that are missing from the at least a portion of the video and audio data received at the first destination machine using the checksum result.~~

83. (Amended) The method of claim 82, further comprising[[]]:
~~further sending the signal to a plurality of checksum points; and~~
~~requesting, from the plurality of checksum points, data packets that are missing from the at least the portion of the video and audio data received at the first destination machine.~~
multicasting at least a portion of the video and audio data to the first client;

sending a signal to a checksum point to request a data packet of the video and audio data that is missing from the at least a portion of the video and audio data received at the first client;
receiving a checksum result at the first client; and
determining a list of data packets that are missing from the at least a portion of the video and audio data received at the first client using the checksum result.

84. (Amended) The method of claim 82, further comprising:
~~further~~ multicasting the video and audio data to a second client connected to said network destination machine.

85. (Amended) The machine-readable storage medium method of claim 84, further comprising:

multicasting the video and audio data through the network from the second client destination machine; and

receiving the video and audio data at the first client destination machine.

86. (Amended) The method of claim 85, further comprising:
using a multicast global listener (multicast GL) between the first client and the second client destination machines to correct for packet loss;

wherein, the first client destination machine sends the video and audio data to the second client destination machine and the second client destination machine sends the data to the first client destination machine.

87. - 88 (Cancelled)

89. (Amended) The method of claim 86, wherein, the multicast GL is implemented in, one or more of, TAPI 3 and IGMPv3.

90. (Amended) The method of claim 84, further comprising:

performing a multi-client web browsing session;

wherein, a browser at the first client destination machine is locked to a browser at the second client destination machine and displays the same website as that displayed at the second client destination machine.

91. (Amended) The method of claim 84, wherein, the audio data is uncompressed.

92. (Amended) The method of claim 84, wherein, the video data is uncompressed.

93. (Amended) The method of claim 82, wherein, the network is a one-to-many network and the multicast stream is established from an outermost client destination machine in the set of destination machines in the one-to-many network configuration.

94. (Amended) The method of claim 92 94: wherein, the first client machine sends the video data to the second an adjacent client machine and the second adjacent client machine sends the data to the first client machine to correct for packet loss in the one-to-many network configuration of video conferencing.

95. (Amended) A ~~computer implemented~~ method for multicasting video and audio data through an email a wireless network in real-time or near real-time, comprising:

receiving video and audio data at a source client operatively attached to said email network;

converting said video and audio data into a format efficiently sized for transmission over the email network;

associating said formatted video and audio data with an email message;

sending said email message for delivery to a destination client operatively attached to said email network;

multicasting, via SMTP, said converted video and audio data as a stream of data blocks sized sufficiently small to efficiently traverse through said email network using a bi-directional

delivery protocol (BDP), wherein said bi-directional delivery protocol comprises sending a binomial TCP forward packet and a simple UDP backwards packet;

displaying the video and audio data as the data blocks of the stream arrive at the destination client, wherein the displaying initiates before all the data blocks of the stream arrive at the destination client; and

~~performing error correction to reduce packet loss using checksums when multicasting said video and audio data;~~

~~wherein, said using said bi-directional delivery protocol (BDP) comprises sending a binomial TCP forward packet and a simple UDP backwards packet.~~

~~multicasting at least a portion of the video and audio data to a first destination machine;~~

~~sending a signal to a checksum point to request a data packet of the video and audio data that is missing from the at least a portion of the video and audio data received at the first destination machine;~~

~~receiving a checksum result at the first destination machine;~~

~~determining a list of data packets that are missing from the at least a portion of the video and audio data received at the first destination machine using the checksum result; and~~

~~further multicasting the video and audio data to a second destination client machine.~~

96. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, video and audio data comprise live updates to a sporting event.

97. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, the first destination client machine is a wireless phone.

98. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, the second destination client machine is a web TV system.

99. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, the second destination client machine is a computer.

100. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, the audio data is uncompressed.

101. (Amended) The ~~computer-implemented~~ method of claim 95, wherein, the video data is uncompressed.

102. - 105. (Cancelled)

106. (New) The method of claim 1, wherein, to determine the available bandwidth, the first client receives a second rate-specific data stream.

107. (New) The method of claim 106, wherein, the first client ceases to receive the second rate-specific data stream upon determination of insufficient available bandwidth.

108. (New) The method of claim 1, wherein, said determining of the available bandwidth is based on a source client connected to said network and configured to send the rate-specific data stream.

109. (New) The method of claim 108, wherein said determining of the available bandwidth is performed, by the source client, through a process of increasing and decreasing the rate of the rate-specific data stream sent for delivery to the first client.

110. (New) The method of claim 109, wherein the first client and the second client join a group configured to receive the rate-specific data stream, and wherein the rate of the rate-specific data stream corresponds to a receiving rate of the first client and the second client.

111. (New) The method of claim 1, wherein the dynamic adjustment of the rate-specific data stream is based on modifying a TCP window size and modifying a compression rate of the data of the rate-specific data stream.

112. (New) The method of claim 1, wherein an increase in the available network bandwidth is achieved by filtering specific information from the rate-specific data stream multicast through the network.

113. (New) The method of claim 112, wherein the specific information is selected from the group consisting of a frame type, layer, frequency, and codec.

114. (New) The method of claim 1, wherein the rate-specific data stream is directed through one or more routers located on the network, wherein the one or more routers are not actively enabled for multicasting.

115. (New) The method of claim 95, wherein said video and audio data is converted into equal-sized data chunks for delivery to the destination client of the email network, wherein each data chunk is delivered substantially separate from the delivery of each other data chunk of the equal-sized data chunks.

116. (New) The method of claim 115, wherein the data chunks are approximately 2Kb is size.

117. (New) The method of claim 95, wherein the multicast data stream is masqueraded as a unicast transmission.

118. (New) The method of claim 95, further comprising:
multicasting at least a portion of the video and audio data to the destination client;

performing error correction to reduce packet loss using checksums when multicasting said video and audio data;

sending a signal to a checksum point to request a data packet of the video and audio data that is missing from the at least a portion of the video and audio data received at the destination client;

receiving a checksum result at the destination client; and

determining a list of data packets that are missing from the at least a portion of the video and audio data received at the destination client using the checksum result.

119. (New) The method of claim 1, wherein, the data comprises live updates to a sporting event.